

CLAIMS

What is claimed is:

1. A buoy for observing and monitoring the surface of a predetermined area of
5 water, comprising:

a flotation device;

a waterproof imaging device attached to the exterior of the flotation device, the
imaging device operable for obtaining continuous real-time images of the surface of the
predetermined area of water;

10 a waterproof computer partially or wholly disposed within the flotation device,
the computer operable for storing the continuous real-time images of the surface of the
predetermined area of water; and

one or more communications devices partially or wholly disposed within the
flotation device, the one or more communications devices operable for transmitting a
15 signal representing the continuous real-time images of the surface of the predetermined
area of water to an operator at a remote location.

2. The buoy of claim 1, further comprising a gimbal structure attached to the exterior
of the flotation device and to the imaging device, the gimbal structure operable for
20 allowing the imaging device to remain level in the presence of buoy tilting caused by
wind and/or water currents.

3. The buoy of claim 1, further comprising a power source partially or wholly
disposed within the flotation device, the power source operable for providing power to
25 the imaging device, the computer, and the one or more communications devices.

4. The buoy of claim 1, further comprising a plurality of energy collecting/power
generating devices attached to the exterior of the flotation device, the plurality of energy
collecting/power generating devices operable for maintaining the voltage level of the
30 power source.

5. The buoy of claim 1, wherein the one or more communications devices further comprise one or more mobile telephones having data transmission capability.

6. The buoy of claim 1, wherein the one or more communications devices further
5 comprise one or more telemetry devices.

7. The buoy of claim 1, wherein the imaging device is disposed within a protective structure.

10 8. The buoy of claim 1, further comprising a tether and a mooring attached to the exterior of the flotation device, the tether and the mooring operable for securing the flotation device in a predetermined location.

9. The buoy of claim 1, further comprising a controller associated with the imaging
15 device, the controller operable for controlling the orientation of the imaging device relative to the surface of the predetermined area of water.

10. A buoy for observing and monitoring the surface of a predetermined area of water, comprising:

20 a flotation device;

an imaging device attached to the exterior of the flotation device, the imaging device operable for obtaining continuous real-time images of the surface of the predetermined area of water;

25 a computer partially or wholly disposed within the flotation device, the computer operable for storing the continuous real-time images of the surface of the predetermined area of water;

30 one or more communications devices partially or wholly disposed within the flotation device, the one or more communications devices operable for transmitting a signal representing the continuous real-time images of the surface of the predetermined area of water to an operator at a remote location; and

a gimbal structure attached to the exterior of the flotation device and to the imaging device, the gimbal structure operable for allowing the imaging device to remain level in the presence of buoy tilting caused by wind and/or water currents.

5 11. The buoy of claim 10, further comprising a power source partially or wholly disposed within the flotation device, the power source operable for providing power to the imaging device, the computer, and the one or more communications devices.

10 12. The buoy of claim 10, further comprising a plurality of energy collecting/power generating devices attached to the exterior of the flotation device, the plurality of energy collecting/power generating devices operable for maintaining the voltage level of the power source.

15 13. The buoy of claim 10, wherein the one or more communications devices further comprise one or more mobile telephones having data transmission capability.

14. The buoy of claim 10, wherein the one or more communications devices further comprise one or more telemetry devices.

20 15. The buoy of claim 10, wherein the imaging device is disposed within a protective structure.

25 16. The buoy of claim 10, further comprising a tether and a mooring attached to the exterior of the flotation device, the tether and the mooring operable for securing the flotation device in a predetermined location.

17. The buoy of claim 10, further comprising a controller associated with the imaging device, the controller operable for controlling the orientation of the imaging device relative to the surface of the predetermined area of water.

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